

Appl. No. : 10/634,212
Filed : August 5, 2003

AMENDMENTS TO THE CLAIMS

Claims 1-10 (Cancel)

11. (Currently Amended) ~~The device of Claim 10, wherein the spacer is formed of a material selected~~ A magnetic memory device formed on a substrate comprising:

a pinned layer magnetized in a first direction and patterned to a first width;

a sense layer that can be selectively magnetized in the first direction or a second direction that is opposite the first direction so as to change the net resistivity of the magnetic memory device, and wherein the sense layer is patterned to a second width that is at least less than the first width to thereby reduce magnetic coupling between the pinned and sensed layers;

a spacer that is positioned about the outer lateral edge of the sense layer, wherein the spacer is interposed between the outer lateral edges of the sense layer and the pinned layer, wherein the spacer is formed of a non-conducting material selected from the group consisting of silicon nitride (SiN), SiC, and a-carbon.

12. (Currently Amended) A magnetic memory device comprising:

a substrate having an opening formed therein;

a conductor formed within the opening of the substrate;

a pinned layer formed above the substrate so as to overlie the conductor, wherein the pinned layer is magnetized in a first direction, and wherein the pinned layer is patterned to a first width;

a tunnel layer formed above the pinned layer so as to overlie the pinned layer, wherein the tunnel layer is patterned to the first width; and

a sense layer formed above the tunnel layer so as to overlie the tunnel layer, wherein the sense layer can be selectively magnetized in the first direction or a second direction that is opposite the first direction so as to change the net resistivity of the magnetic memory device, and wherein the sense layer is patterned to a second width that is at least less than the first width to thereby reduce magnetic coupling between the pinned and sense layers; and

a spacer that is positioned about the outer lateral edges of the sense layer, wherein the spacer is formed of a material selected from the group consisting of silicon nitride, silicon carbide, and amorphous carbon.

13. (New) The device of Claim 11, wherein the substrate comprises a conductor formed therein.

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14. (New) The device of Claim 12, wherein the pinned layer is formed above the substrate so as to overlie the conductor.

15. (New) The device of Claim 14, wherein the magnetic memory device further comprises a tunnel layer that is formed so as to overlie the pinned layer and be interposed between the pinned layer and the sense layer.

16. (New) The device of Claim 15, wherein the sense layer is formed so as to overlie the tunnel layer.

17. (New) The device of Claim 11, wherein the sense layer comprises a variable magnetic field that can be varied by the application of an external field to thereby change the combined magnetic characteristics of the pinned and sense magnetic layers.

18. (New) The device of Claim 11, wherein the pinned layer is formed of nickel iron (NiFe), the tunnel layer is formed of aluminum oxide (Al_2O_3) and the sense layer is formed of nickel iron cobalt (NiFeCo).